

AMENDMENTS TO THE SPECIFICATION

Kindly amend the specification as follows:

Please replace paragraph [0014] with the following:

[0014] ~~Most arithmetic coders consist of both a probability estimation part and an entropy coding part. The probability distribution estimates for all events may be fixed ahead of time for all uses of the coder; an arithmetic coder with this property is called “non-adaptive.” The probability distribution estimates for all events may be computed before a use of the coder, and transmitted to the decoder before coding commences; this distribution is then used for the entire use of the coder. An arithmetic coder with this property is called “semi-adaptive.” The probability distribution estimates that the coder uses may change for some or all events during the use of the coder in such a way that the decoder can make the same changes to the probability distribution estimates. An arithmetic coder with this property is called “adaptive.” In an adaptive arithmetic coder, it is possible to initialize one or more of the probability distribution estimates to some predetermined values. This often leads to faster adaptation. A typical use of an adaptive arithmetic coder is to always initialize all probability distributions to values that are typical for the type of data being coded, then during a given use of the coder to adapt the appropriate distributions after each event is coded. What is needed in the art is an improvement~~ image coding and decoding.

Please replace paragraph [0034] with the following:

[0034] The computer device codes the values of the nonzero coefficients in any fixed order, using any coder. The coder may be an adaptive, semi-adaptive or non-adaptive arithmetic coder, or it may be any other coder. Most arithmetic coders consist of both a probability estimation part and an entropy coding part. The probability distribution estimates for all events may be fixed ahead of time for all uses of the coder; an arithmetic coder with this property is called “non-adaptive.” The probability distribution estimates for all events may be computed before a use of the coder, and transmitted to the decoder before coding commences; this distribution is

then used for the entire use of the coder. An arithmetic coder with this property is called “semi-adaptive.” The probability distribution estimates that the coder uses may change for some or all events during the use of the coder in such a way that the decoder can make the same changes to the probability distribution estimates. An arithmetic coder with this property is called “adaptive.” In an adaptive arithmetic coder, it is possible to initialize one or more of the probability distribution estimates to some predetermined values. This often leads to faster adaptation. A typical use of an adaptive arithmetic coder is to always initialize all probability distributions to values that are typical for the type of data being coded, then during a given use of the coder to adapt the appropriate distributions after each event is coded. If the coefficients are coded using an arithmetic coder, each coefficient is coded according to its own context, possibly based on which coefficient it is and possibly based on other factors. All coefficients are coded except the zero coefficients indicated by the bit vector described above. FIG. 8 illustrates the coding of nonzero coefficients. The nonzero coefficients form a list of transform coefficients 802 are coded using any coder 804. The coder outputs bits to the bitstream 806.